

was seen in 73.3% of cases with predominance of *E. Coli*, *Klebsiella* and pyocyanous micro-organisms. Oonwala ZG and Sheikh NA<sup>15</sup> (1992) has reported 73.0% incidence of UTI. Memon AS<sup>17</sup> 45% and Robinson MRG et al<sup>17</sup> 100%. It is possibly due to catheter drainage once or twice pre-operatively for relieving the retention of urine. The incidence increases when any catheter remains for more than 5-6 days due to either formation of continuous biofilm of commensal bacteria over catheter from external meatus to bladder<sup>18</sup> or entry of organisms into closed system of urinary drainage which are carried up into bladder by bacterial movement or on interface of urine bubbles<sup>19</sup>. Antibiotics need not be given in noncatheterised patients with known sterile urine.<sup>6</sup> Prophylactic antibiotics were given to all the patients who were catheterised or in whom urine culture was positive, preferably one that has been shown to achieve high tissue levels in the prostate<sup>20,21</sup>.

In comparing the complication rate in two type of procedures, it is obvious that complications like secondary haemorrhage, transient incontinence, clot retention, orchitis and post-operative retention of urine are fairly high in open prostatectomy as compared to TURP. Wound infection 2.81%, suprapubic urinary leakage 6.7% are the complications only seen in open prostatectomy and were responsible for longer duration of hospital stay in these cases. Bladder perforation though rare is the only major complication with TURP. It was seen in 3 cases (40%) in this study and was identified and dealt with during the procedure, although two later died. TURP syndrome was not seen in any case. We did repeat TURP in 3 (4.0%) patients who developed retention of urine or procedure was abandoned due to massive haemorrhage. Fifty cases (66.6%) in TURP as compared to 20 cases (26.7%) in open prostatectomy left the hospital without complications.

The urinary incontinence seen in this study was transient in all the cases and was possibly due to prolonged catheterisation or possibly due to instability of detrusor from some other cause<sup>12</sup>, in the form of frequency of micturition preoperatively. TURP in such cases may change the picture of frequency into incontinence<sup>7,10</sup>. However, all cases recovered with conservative treatment and physiotherapy and no one had permanent incontinence.

The hospital stay with open prostatectomy was higher ranging from 8 to 45 days with mean stay of 22.4 days, where as in case of TURP it varied from 3 to 23 days with mean stay of 8.3 days. Which is almost one third as compared with patients of open prostatectomy. Hospital stay in TURP was 11.5 days as shown by Oonwala ZG and Sheikh NA<sup>15</sup> where as in open prostatectomy was 13 days as similar to Memon AS<sup>13</sup> in their studies.

The overall mortality rate seen in this study was 1.33% (2 cases) Memon AS<sup>17</sup> had 1.5% mortality rate in his study for open prostatectomy where as Oonwala ZG and Sheikh NA<sup>15</sup> reported 1.9% in their study of TURP. In our study it is higher as compared to other studies.

It is concluded that TURP is better procedure than open prostatectomy, because of low complications rate and less hospital stay. TURP is more suitable for old and relatively unfit patients. TURP is better procedure for small, fibrotic, moderately enlarged and malignant prostates. TURP is a safe procedure in experienced hands.

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# Transurethral Resection Versus Open Prostatectomy

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A study of 150 cases of enlarged prostate has been carried out from January 1990 to December 1992 at the Urology Department of Liaquat Medical College Jamshoro. Age range was 50 to 100 years, 86.6% of patients presented between 50 to 70 years. Majority of them presented with retained catheter. Seventy five patients underwent TURP and the same number of patients underwent open prostatectomy. Comparison has been made regarding complications and hospital stay between the two procedures. Secondary haemorrhage seen in 13.3% (10 cases) in TURP and 20% (15 cases) in open prostatectomy and transient incontinence 12.05% (9 cases) in TURP and 22.7% (17 cases) in open prostatectomy were the common complications found in both procedures. Wound infection 28.0% (21 cases) and urinary leakage 6.7% (5 cases) were the complications seen only in open procedures. The average hospital stay with TURP was 8.3 days as compared to open prostatectomy 22.4 days.

**Key words:** Benign Prostatic Hyperplasia, TURP, Open Prostatectomy.

Hypertrophy and enlargement of prostate is a common problem in patients over 50 years of age. It is the most common urological disease after renal calculi. World-wide treatment modalities available for benign prostatic hyperplasia of prostate include, pharmacological treatment, prostatic stents, laser ultrasound and surgery in the form of open prostatectomy or transurethral resection of prostate (TURP). TURP today is the commonest procedure performed for the treatment of more than 90.5% of men with outflow bladder obstruction whether caused by benign enlargement of prostate, bladder neck fibrosis or carcinoma<sup>1</sup>.

Pharmacological treatment has very little role except in early symptoms of enlarged prostate or in old and unfit patients. It has been a constant finding in every study of a new medical treatment for the prostate, that about a third of men in this category get better even with placebo<sup>2</sup>.

In our hospital open prostatectomy was the only procedure performed before the establishment of urology department i.e. before 1988 but now majority of patients with BPH are treated with TURP. Open prostatectomy is carried out only in patients with large vesical calculi. The purpose of this study is to compare the results of TURP and open prostatectomy performed in urology department at LMCH Jamshoro Hyderabad.

## Patients and Methods

A total 150 cases of enlarged prostate has been operated and studied from January 1990 to December 1992 in urology department of Liaquat Medical College Jamshoro. The patients with carcinoma of prostate or carcinoma of urinary bladder diagnosed pre-operatively, during resection or afterwards confirmed by biopsy were excluded from this study. Most of the cases i.e. 80% patients belonged to the rural and only 20% to urban

area. Ninety five cases (63.3%) were admitted in hospital with symptoms of obstructive uropathy i.e. retention of urine. Irritative symptoms like frequency, urgency and hesitancy were seen in 55 patients (36.7%).

Diagnostic criteria included history of patient and per rectal examination supported by ultrasonic examination of pelvis particularly for prostate. Before surgery relevant investigations like CBC, urine analysis, urine culture, blood urea, x ray chest and KUB were carried out in all patients. IVU and renal studies were only done in few patients with haematuria and azotemia.

Patients with very large prostate or those with large vesical calculi were selected for open prostatectomy. Where as patients with small moderately enlarged and fibrotic prostate were preferred for TURP.

TURP was performed with intermittent or continuous irrigation resectoscope (Karl Storz). Boiled and cooled tap water was used as irrigating fluid for TURP and post operatively normal saline was used for bladder irrigation. All patients received perioperative antibiotic coverage.

## Results

Age incidence in this series range from 50 to 100 years. Majority (86.6%) presented between 51 to 70 years of age (Table 1) and mean age was 60.78 years.

**Table 1.** Age Incidence

Age	n <sup>o</sup>	%age
51-60 years	78	52.0
61-70 years	52	34.6
71-80 years	16	10.6
81-90 years	03	2.0
91-100 years	01	0.7
Total:	150	99.9

Table 2 shows the associated diseases. Vesical calculi 22% and inguinal hernia 13.3% were the common

associated problems. Urinary tract infections were seen in (73.3 %) 110 cases mainly affecting the patients who presented with retained catheters (Table 3). E Coli 40.91% Klebsiella 25.45% and Pyocyanous 15.45% were the main organisms involved in infection.

**Table 2.** Associated Diseases

Associated diseases	n=	%age
Vesical calculi	33	22.0
Inguinal hernia	20	13.3
Stricture urethra	02	01.3
Haemorrhoids	05	03.3
Hypertension	10	06.6
D.Mellitus	04	02.6
COPD	08	05.3
Total:	82	54.0

**Table 3.** Micro-organisms grown on urine culture n=110 cases)

Micro-organism	n=	%age
E. Coli	45	40.91
Klebsiella	28	25.45
Pyocyanous	17	15.45
B. Proteus	13	11.80
Aerobacter Aerogenosa	07	06.36
Total:	110	100.00

The different operative procedures carried out in these 150 cases are elaborated in Table 4.

TURP was combined with litholapaxy in 3 cases (4.0%) for vesical calculi and optical urethrotomy in 2 cases (2.7%) with stricture urethra along with enlarged prostate. Strictures may be found in patients who require TURP and for the passage of resectoscope it is necessary to dilate them or perform internal urethrotomy. Table 5 shows list of complications seen in different surgical procedures. Incidence of complications was more prevalent in patients who were admitted with retained Foley catheter. Secondary haemorrhage and transient urinary incontinence were the common complications in both types of operations. Wound infection and suprapubic urinary leakage were seen in only open prostatectomy and was responsible for longer duration of hospital stay.

**Table 4.** Operative Procedures

Procedure	n=	%age
(A) TURP (75 cases)		
i. TURP	70	93.3
ii. TURP + Litholapaxy	03	04.0
iii. TURP + Optical	02	02.7
(B) OPEN PROSTATECTOMY (75 cases)		
i. Transvesical Prostatectomy (TVP)	21	28.0
ii. IVP. + Cystolithotomy	30	40.0
iii. Retropubic Prostatectomy	24	32.0
Total	150	

Table 6 shows the details of hospital stay with comparison in two types of procedures. In TURP minimum stay was 3 days and maximum stay 23 days with mean stay of 8.3 days where as in open prostatectomy minimum stay was 8 days and maximum stay was 45 days with mean stay of 22.4 days.

**Table 5.** Postoperative Complications

Name of complication	TURP	Open Prostatectomy
Secondary haemorrhage	10(13.3%)	15(20.0%)
Transient incontinence	09(12.0%)	17(22.7%)
Wound infection	Nil	21(28.0%)
Clot retention	Nil	05(06.7%)
Post operative retention	02(02.7%)	05(06.7%)
Suprapubic urinary leakage	Nil	05(06.7%)
Epididymo-orchitis	01(13.0%)	03(04.0%)
Bladder perforation	03(04.0%)	Nil
TUR Syndrome	Nil	-
Redo TURP.	03(04.0%)	-

**Table 6.** Hospital stay.

Procedure	DAYS	n=	%age
TURP	03-10	67	89.3
Mean stay	11-20	06	8.0
	21-30	02	02.7
Total	08.30	75	100.0
Open Prostatectomy	03-10	20	26.7
Mean stay	11-20	43	57.3
	21-30	09	12.0
	>31	03	04.0
Total	22.40	75	100

In this series two patients died with mortality of 2.7%, both patients underwent TURP and later converted to open prostatectomy due to bladder perforation. They died suddenly in the postoperative period possibly due to massive myocardial infarction or pulmonary embolism.

## Discussion

The results of various operative procedures for enlarged prostate have been compared in 150 cases of this study. BPH is common between 50-90 years of age. In this study the average age was 60.7 years. The average age reported by Memon AS<sup>13</sup> is 62 years, by Hicken Bothan<sup>5</sup> is 60 years, by Oonwala<sup>16</sup> 64.2 years, by Mannan A<sup>10</sup> et al 62.5 years. In this series no case presented below the age of 50 years and only one case was seen over the age of 90 years.

Eighty two cases (54.6%) had associated (Table 2) medical and surgical problems. Associated vesical calculi 22.0%, inguinal hernia 13.3%, and haemorrhoids 3.3% were commonly seen with enlarged prostate in this series. Incidence of medical problems like hypertension 6.6%, Diabetes mellitus 2.6% and chest disease 5.3% was compared to other studies. Memon AS<sup>13</sup> found 3% incidence of hypertension, 3% of Diabetes, 3% of chest diseases in his series. Bourke and Griffin<sup>3</sup> found significantly higher incidence of hypertension and diabetes mellitus.

Ninety five patients (63%) presented with retention of urine in this series. Memon AS<sup>13</sup> in his study of 200 cases reported an incidence of 60 % where as Khan AS<sup>11</sup> in his series of 850 cases reported an incidence of 88% with acute retention of urine.

Incidence of urinary tract infection with BPH given in different studies varies from 6-100%. In this study it